

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Daniel, Elmer
Serial Number: 09/887,131
Filed: 2001.06.22
Title: Process Independent Alignment Marks
Examiner: Chris C. Chu
Group Art Unit: 2815
Attorney Docket: 01-107

AMENDMENT C

Box Non Fee Amendment
Assistant Commissioner for Patents
Washington DC 20231

Sir:

In response to the office action dated 2002.06.03, please amend the above-referenced application as follows:

IN THE SPECIFICATION

Please replace the third full paragraph on page 8 with the following text:

The substrate 10 is oriented on the substrate support 24 with the second surface 14 of the substrate 10 adjacent the substrate support 24. Thus, the alignment marks 16 on the second surface 14 of the substrate 10 are adjacent the substrate support 24. Most preferably, the substrate 10 is rough aligned before it is positioned on the substrate support 24. This is preferably accomplished by rotating the substrate 10 on a component such as a chuck, while sensing the location of one or both of the major flat 18 and the minor flat 19. By determining the location of one or both of these flats 18 and 19, the substrate 10 can be placed on the substrate support 24 in a relatively known orientation. The benefits of placing the substrate 10 on the substrate support 24 in a know orientation are explained in more detail below.



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B'

Please replace the first full paragraph on page 10 with the following text:

B²

Thus, by placing the complimentary alignment marks 40 in a known position relative to the image or images on the mask 38, and placing the alignment marks 16 in a known position relative to the substrate 10, and then aligning the complimentary alignment marks 40 to the alignment marks 16, the various patterned layers 11 of the integrated circuit formed on the first surface 12 of the substrate 10 are all aligned one to another. The preferred methods and means for aligning the complimentary alignment marks 40 and the alignment marks 16 one to another are described in more detail below.

Please replace the abstract with the following text:

B³ *subcl*

~~An integrated circuit substrate having a first surface for receiving a series of aligned layers during the creation of the integrated circuit, and a second surface disposed substantially opposite the first surface, where the second surface has at least one alignment mark for aligning the series of aligned layers one to another during the creation of the integrated circuit. An apparatus for aligning a mask having an image and at least one complimentary alignment mark to a substrate having a first surface and a substantially opposing second surface, where the substrate has at least one alignment mark on the second surface.~~

IN THE FIGURES

Please amend Fig. 5 as indicated in red in the amended drawing provided herewith, which depicts the aligned layers on the substrate. A formal copy of the revised Fig. 5 is also provided herewith.

REMARKS

Claims 1-6, 8, and 18-19 are in the case. Claims 18-19 are rejected under 35 USC §§ 101 and 112. Claims 1-3, 5-6, 8 and 18-19 are rejected under 35 USC § 102 over Glenn et al. Claim 4 is rejected under 35 USC § 103 over Glenn et al. in view of Fujimura. Claims 18-19 are hereby cancelled. No new matter has been introduced by the amendments, which are supported by the disclosure of the original claims and the